



State of Lake Michigan

Judy Beck, U.S. Environmental Protection Agency

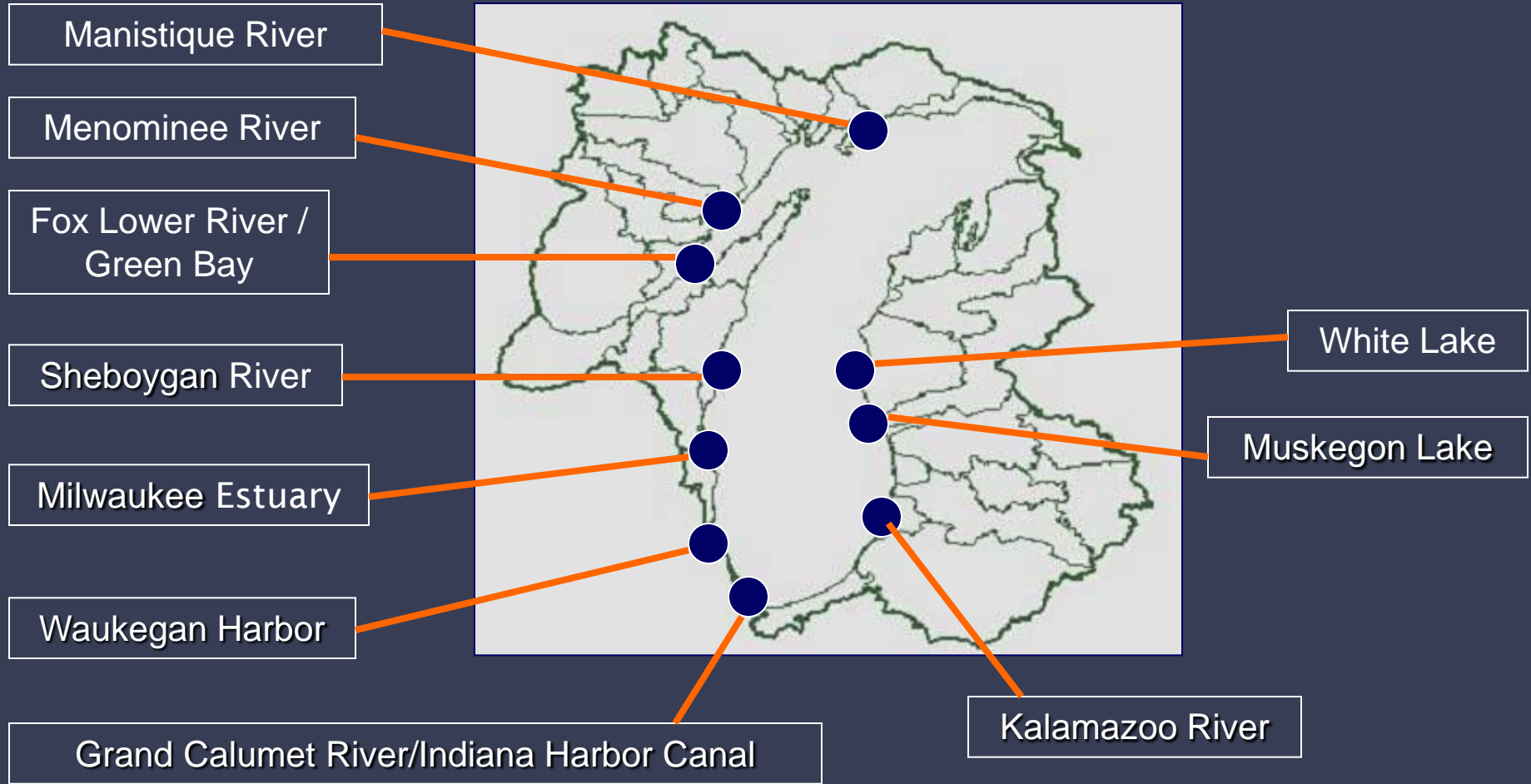
September 27, 2011



“An outstanding natural resource of global significance, under stress and in need of special attention.”



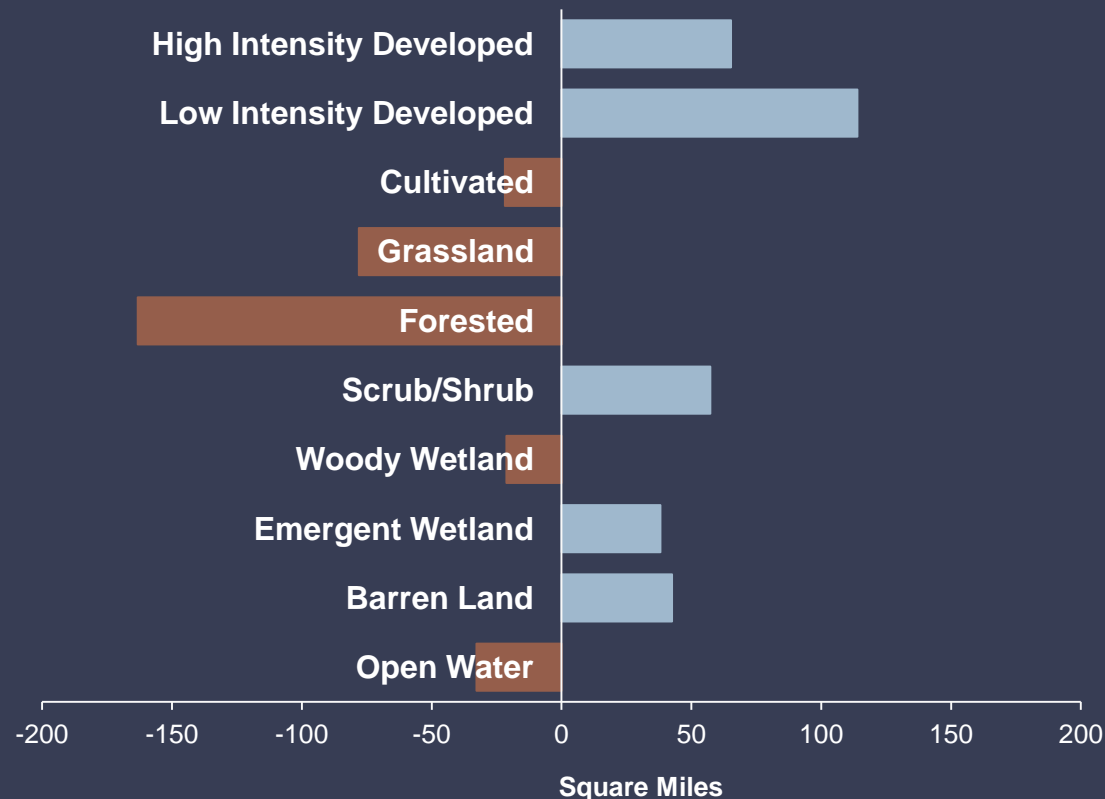
33 Major Sub-Watersheds, 10 AOCs



Clean Up 'Projects' at All

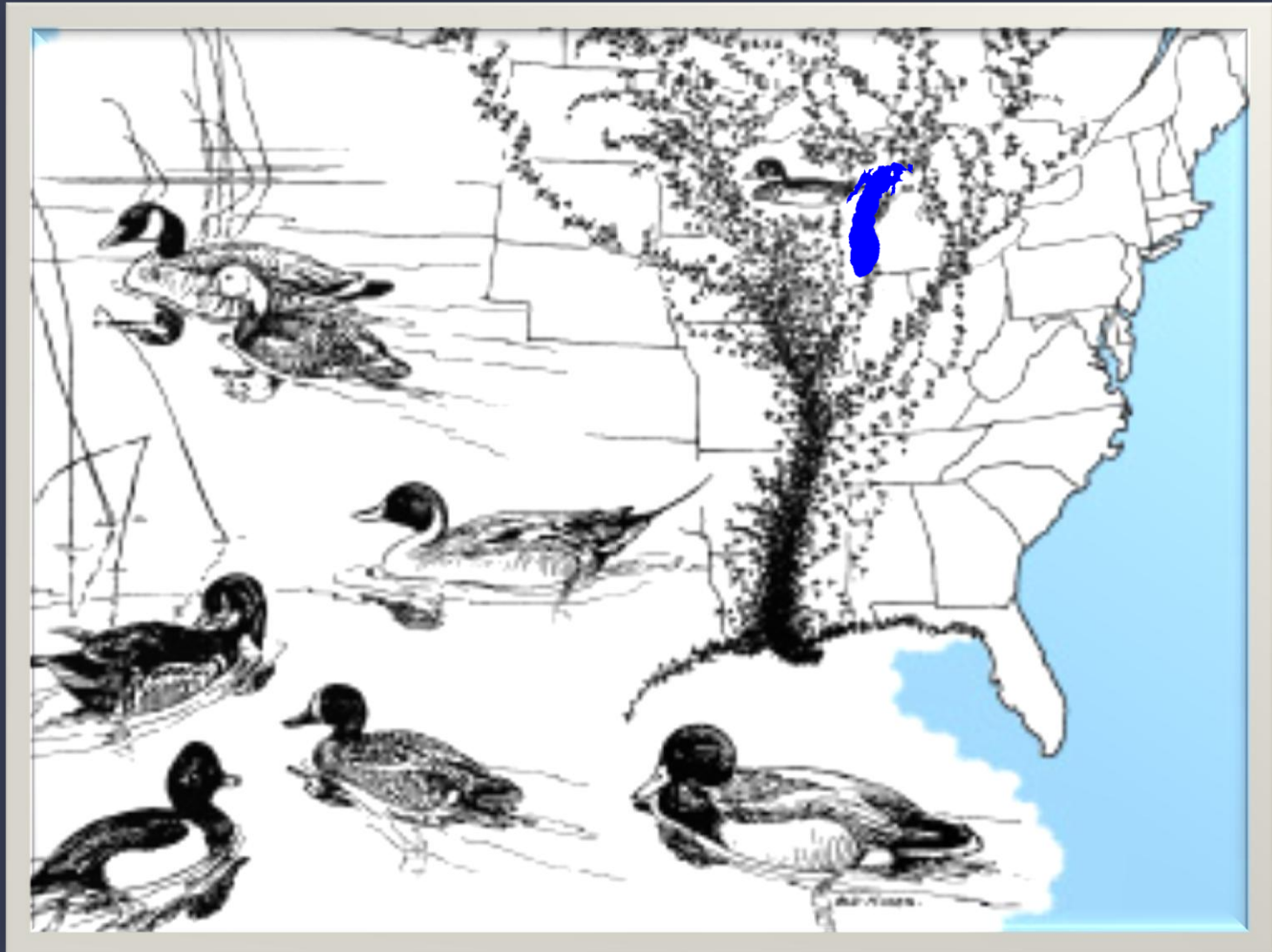
9 AOC GLLA 'Projects'

Lake Michigan Land Cover Trends 1996-2006



More development, less grassland, farms, and open water.
A few more emergent wetlands, but less woody wetland.
(NOAA)

Flyway: Key for Tourism and Biodiversity

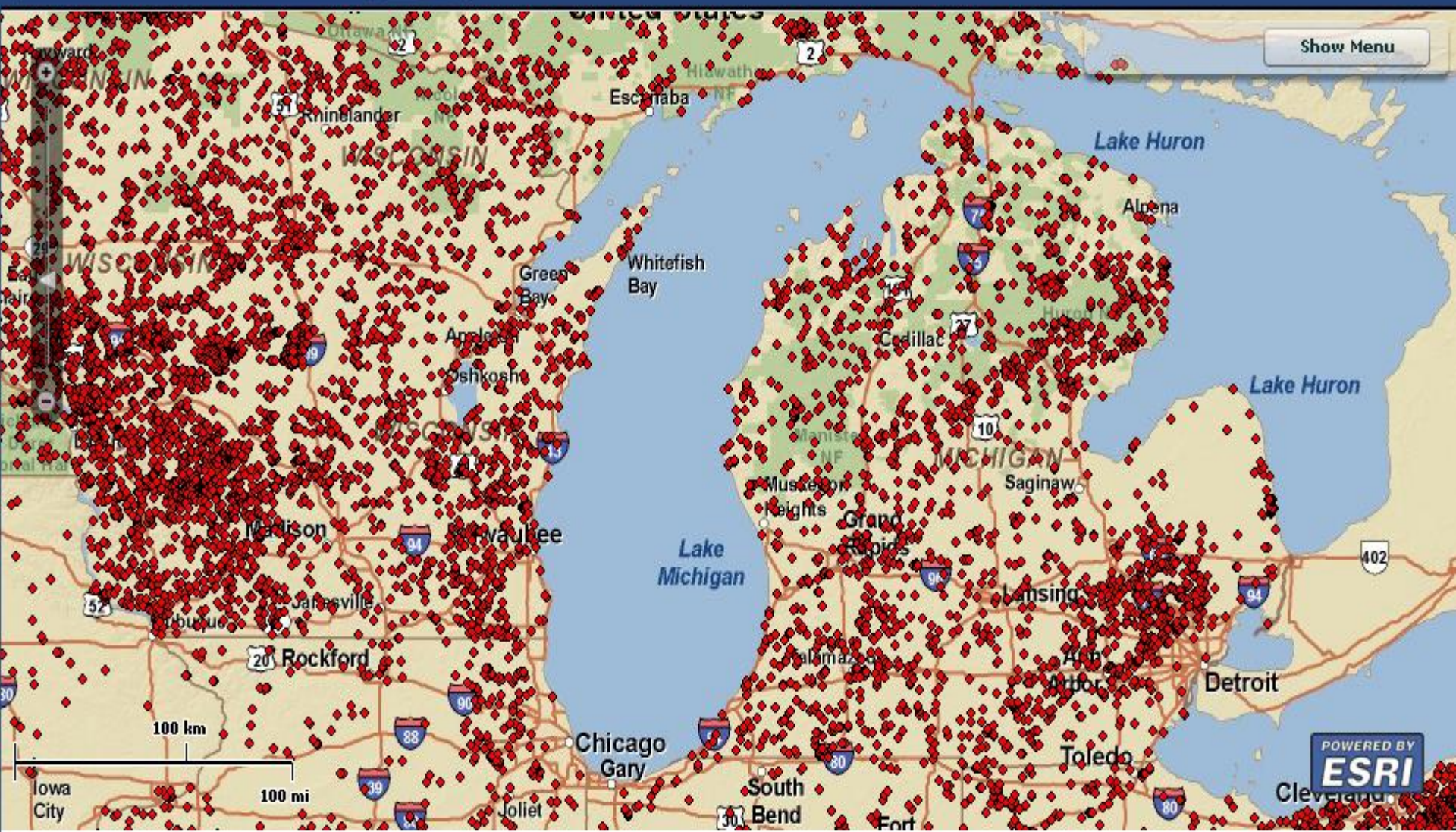




U.S. Fish & Wildlife Service

Fish Passage Decision Support System

Environmental Conservation Online System

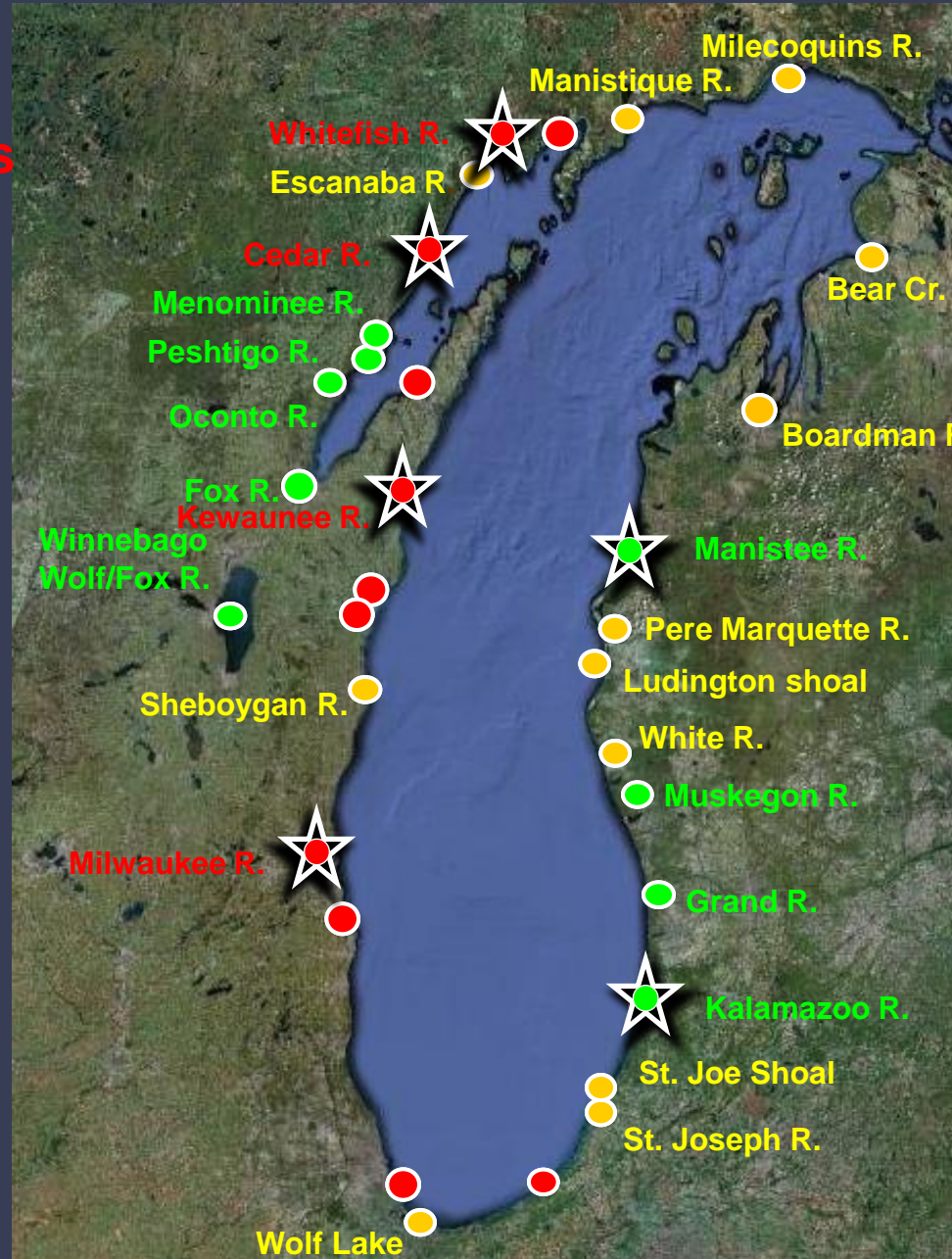
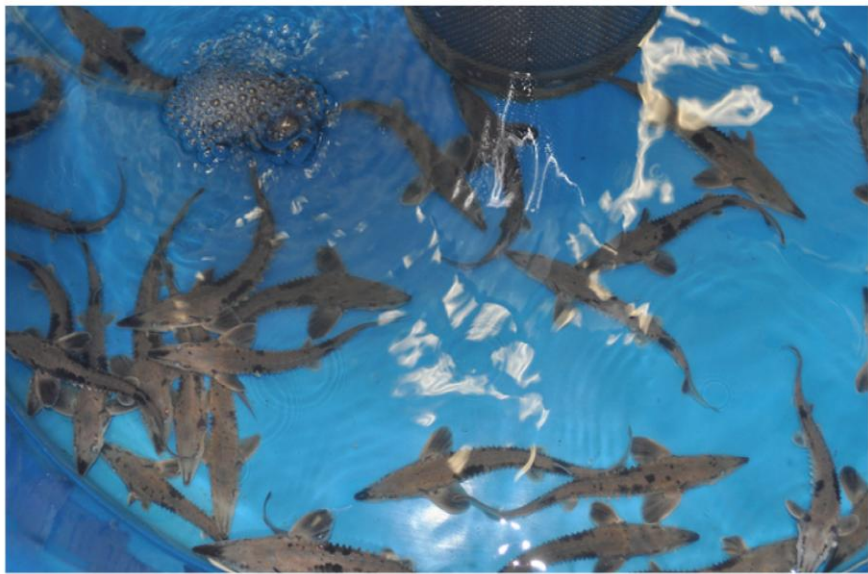




GLRI Funded Fish Passages

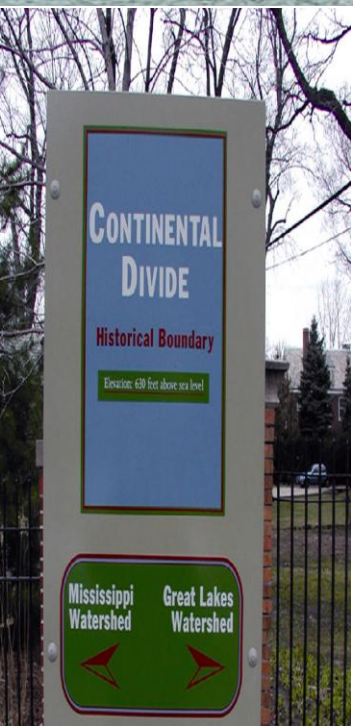
Current Sturgeon Population Status (FWS)

- Presumed Historic Distribution
- Presumed Extirpated Populations
- Occasional Observations but No Documented Reproduction
- Known Spawning Populations
- ★ Streamside Rearing Facility





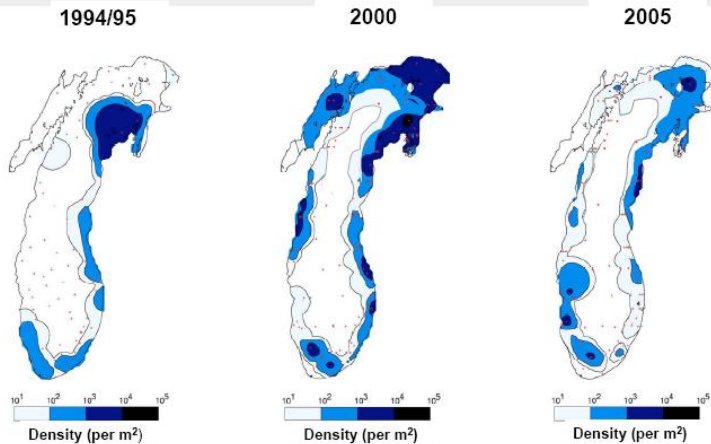
**CARP IS A FOUR
LETTER WORD**



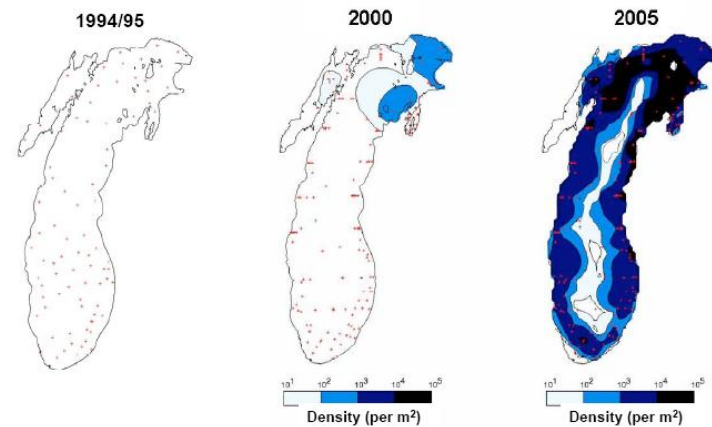
1999-2009

Invasives Quaggas Rule

Dreissena polymorpha (zebra mussel)



Dreissena rostriformis bugensis (quagga mussel)



Food Web Alterations

Zebra Mussels



Round Gobies



Quagga Mussels



Angler Use
Declines 75%
After 2003

1990

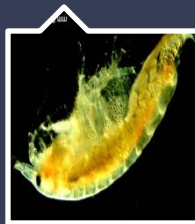
1995

2000

2005



Rising Chinook
Reproduction



Diporeia
Decline Begins



Zooplankton
Decline

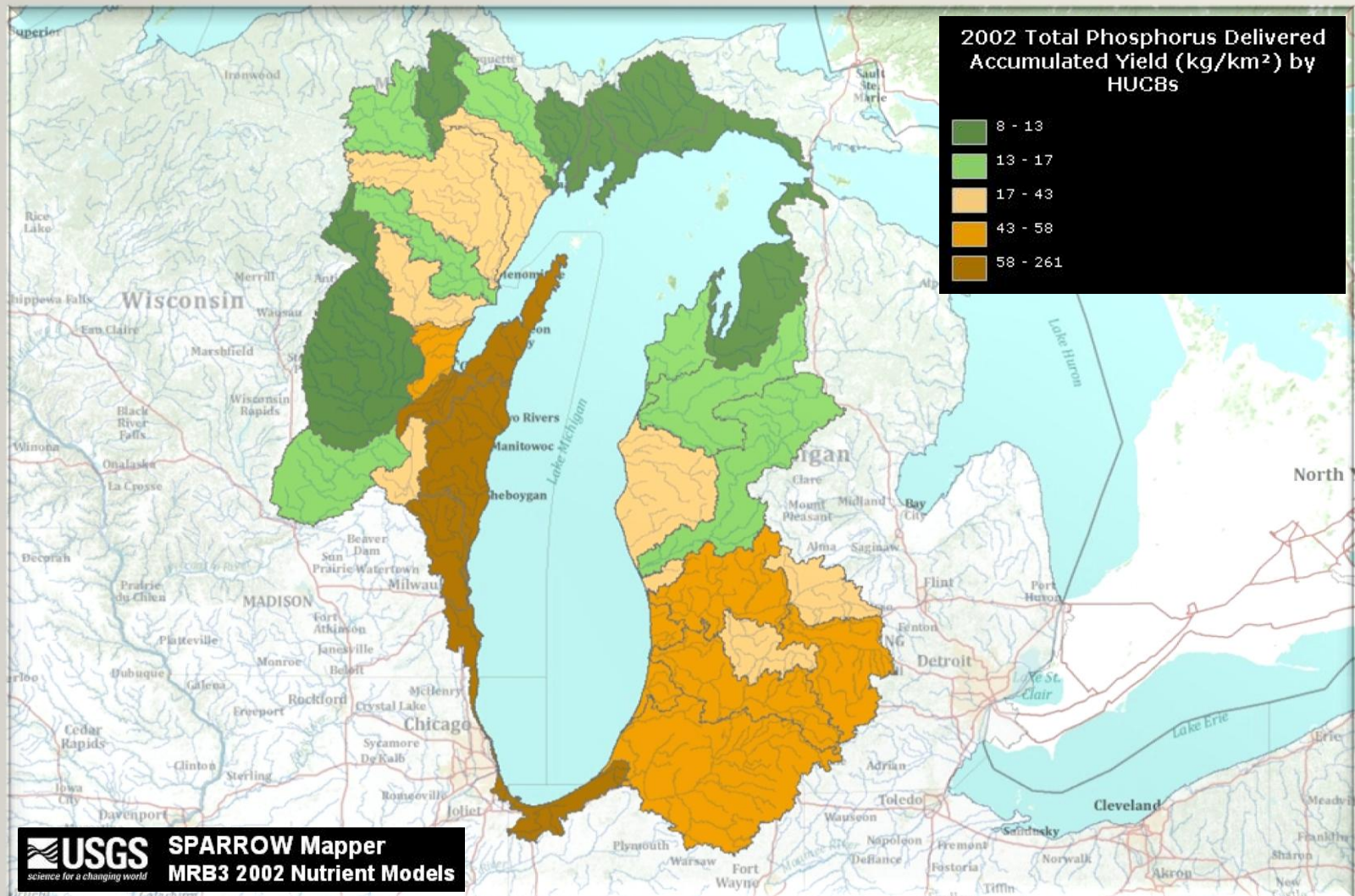


Alewife
Collapse



Chinook
Decline

Phosphorus Yields by HUC



Fox River, WI Plume

April 15, 2011



Same Amount of TP + ANS =
ALGAE

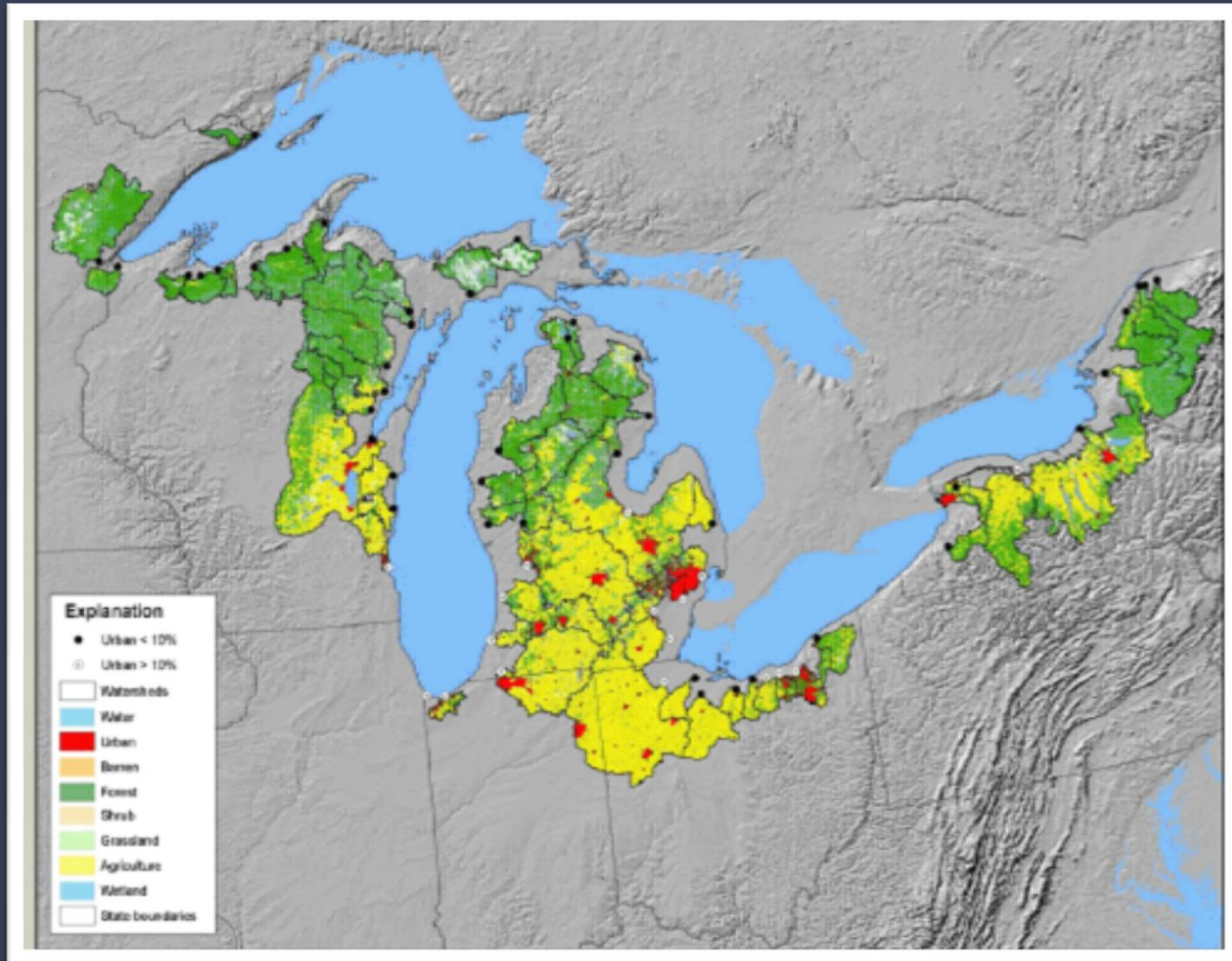


Pre - Dreissenid

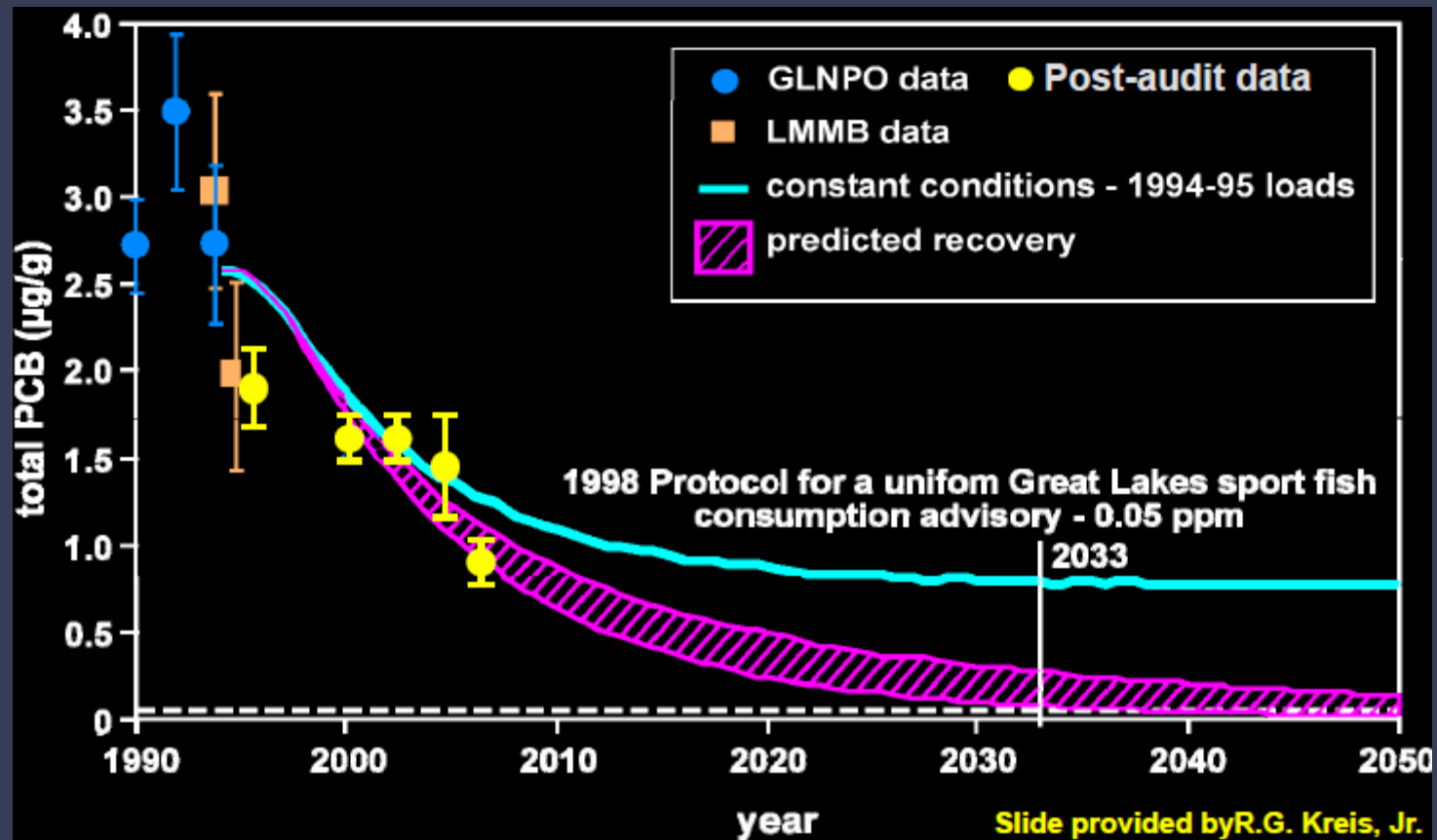


Post - Dreissenid

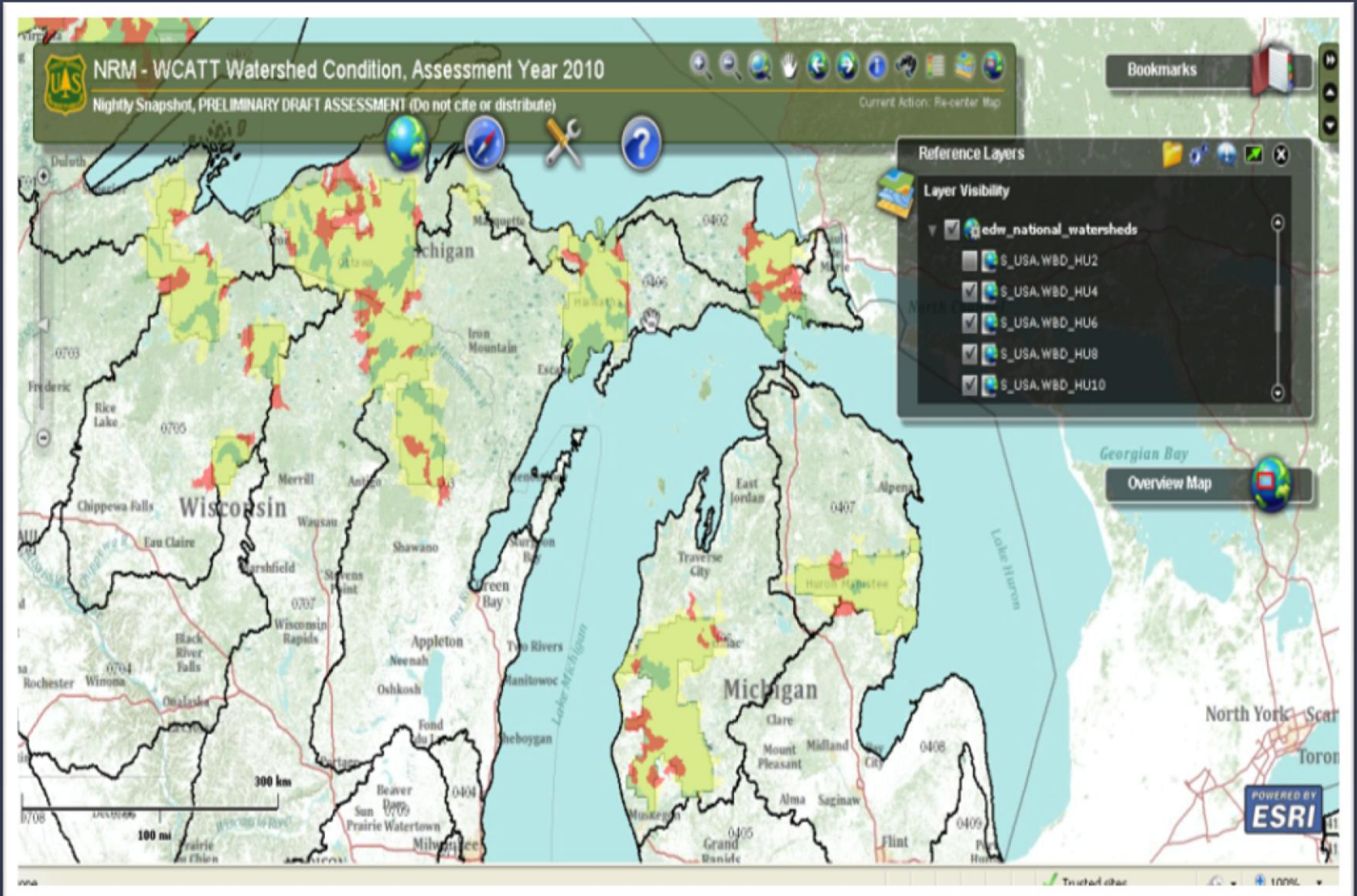
Great Lakes Tributary Loadings Improved Estimated from Sampling 59 Streams



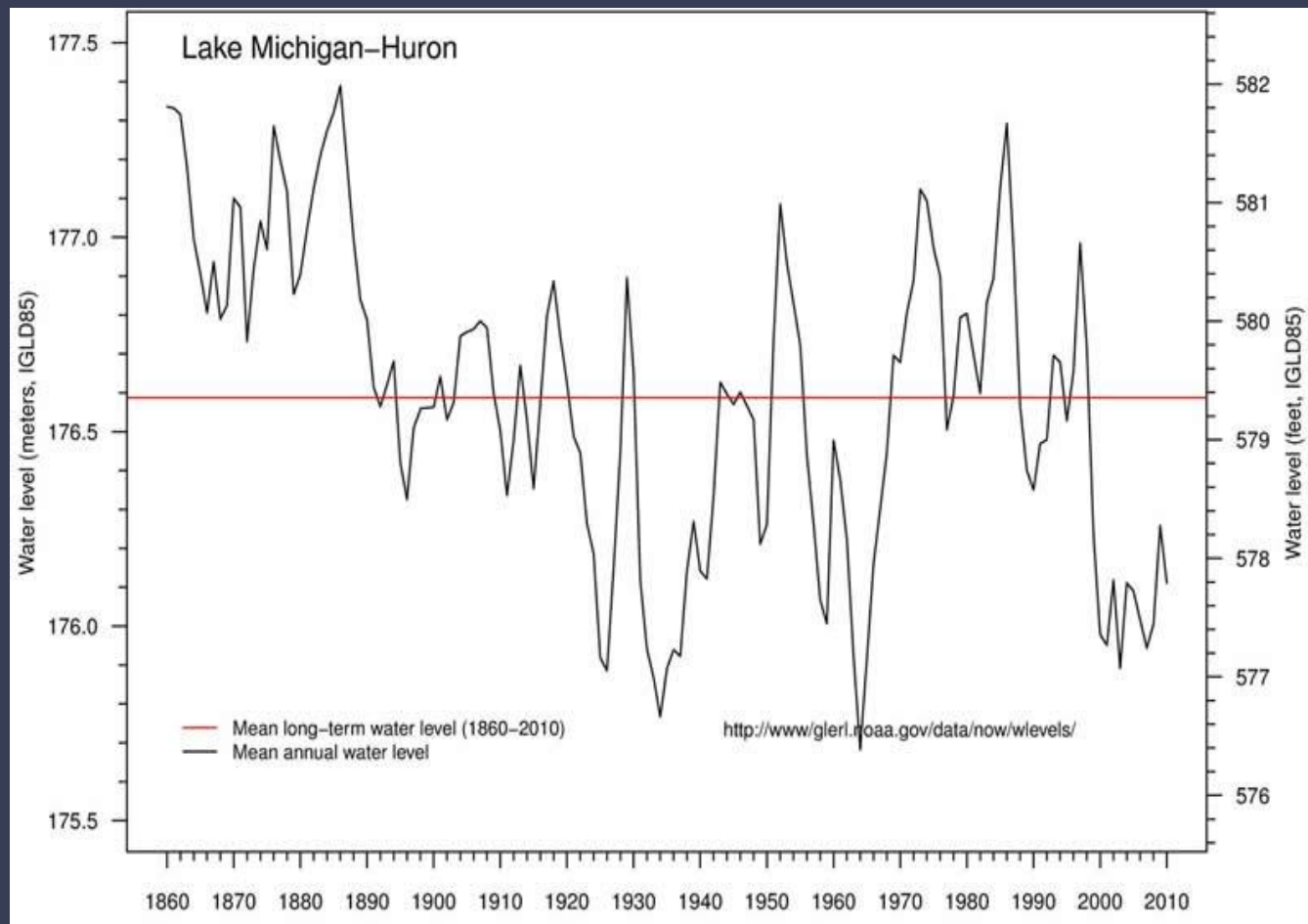
Predicted PCB Concentrations in Age 5.5 Lake Michigan Lake Trout at Saugatuck



National Forest Status



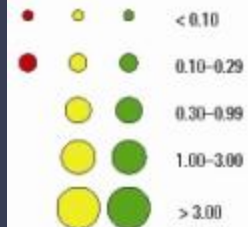
Lake Michigan-Huron 1860-2010 Water Levels (NOAA)



Water Use 1941-1950



Water use for stress period from 1941 through 1950
(million gallons per day)

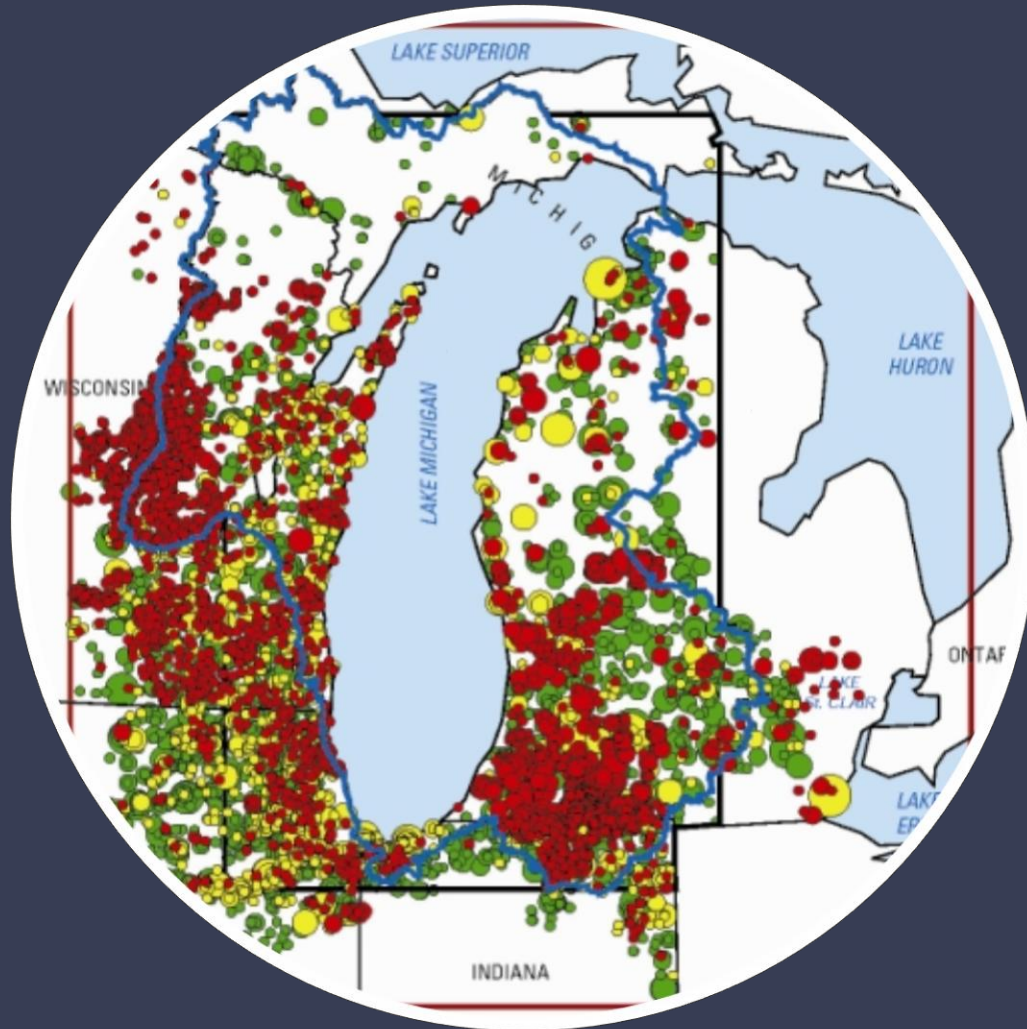


• Irrigation
• Industrial
• Public supply

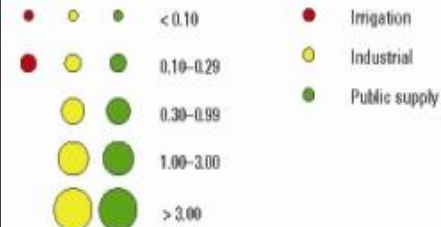
Model or hydrologic boundary

— Model domain
— Lake Michigan Basin
— Model nearfield

Water Use 2001-2005



Water use for stress period from 2001 through 2005
(million gallons per day)



Model or hydrologic boundary



LM WIKI: Watershed Data On Line

https://wiki.epa.gov/watershed2/index.php/Lake_Michigan_Lakewide_Management_Plan

File Edit View Favorites Tools Help

Convert Select

BST Enterprise 8 Customize Links Free Hotmail Suggested Sites Get More Add-ons Windows Marketplace Windows Media Windows

This site is: SAFE Notify us

Watershed Central Wiki

Page discussion view source history

To edit or add content to the wiki, please register or login.

Lake Michigan Lakewide Management Plan

Lake Michigan Lakewide Management Plan (LaMP)

Lakewide Management Plans (LaMPs) stem from the 1987 amendments to the Great Lakes Water Quality Agreement, originally signed by the United States and Canada in 1972. This historic agreement committed both countries "to restore and maintain the chemical, physical and biological integrity of the waters of the Great Lakes basin ecosystem." To meet this commitment, the two governments agreed to develop and implement LaMPs for open lake waters and Remedial Action Plans (RAPs) for specific geographic Areas of Concern (AOCs). LaMPs are intended to identify critical pollutants that affect beneficial uses of the lakes and to present strategies, recommendations and policy options to restore those beneficial uses. LaMPs for lakes Erie, Michigan, Ontario and Superior have been developed with guidance from the U.S. Environmental Protection Agency and Environment Canada. Through an iterative approach, these documents will be updated and re-released every two years to incorporate new data and public input.

The Lake Michigan Lakewide Management Plan (LaMP) was released in 2000. The LaMP vision is: to create a sustainable Lake Michigan ecosystem that ensures environmental integrity and that supports and is supported by economically viable, healthy human communities.

The LaMP goal is: To restore and protect the integrity of the Lake Michigan ecosystem through collaborative, place-based partnerships. The LaMP provides a framework for managing lakewide environmental resources and provides information and tools for building toward a sustainable lakewide ecosystem.

The LaMP is a product of cooperation among the USEPA, state and other federal agencies and local governments and watershed groups. It works closely with the Lake Michigan Monitoring Coordinating Council to ensure that the data needing collection is available to help better understand the environmental health of Lake Michigan and its watershed.

The LaMP was updated in 2002, 2004, 2006, and 2008. The Lake Michigan LaMP uses an adaptive management approach with the goal of making it more a more useful resource. In the 2002 update report, it developed a matrix that provided a quick overview to needs in the Lake Michigan Areas of Concern (AOCs) so that there is a better understanding of what is needed to address AOC issues. In 2004, a series of 2-4 page overviews of each of the 34 8-digit HUCs were developed to provide a summary overview of the watershed, land uses, impairments, activities in addressing impairments, and groups that are working in the watersheds. In 2006, a series of tools were identified that could be used by local governments and local watershed groups to address problems outlined in each LaMP chapter. The 2006 LaMP report also listed the Great Lakes Regional Collaboration (GLRC) recommendations within the relevant chapters.

The Lake Michigan LaMP can be found in the LaMP section of the Great Lakes National Program Office website.

Lake Michigan Subwatersheds

Lake Michigan is surrounded by 33 subwatersheds. A 34th, the Chicago River watershed is no longer part of the Lake Michigan watershed since the flow of Chicago River was reversed in 1900. Information on the 34 watersheds surrounding Lake Michigan are found at the Lake Michigan Subwatershed Information page on Watershed Central.

Lake Michigan Lakewide Management Tools

The Lake Michigan Lakewide Management

[Lake Michigan Table of Contents](#)

[Lake Michigan Lakewide Management Plan \(LaMP\)](#)

[Lake Michigan Lakewide Management Plan Watershed Tools](#)

[Lake Michigan Case Studies](#)

[Lake Michigan Monitoring Coordinating Council](#)

[Lake Michigan Partnership Directory](#)

[Lake Michigan Watershed Academy](#)

[Lake Michigan Forum](#)

[Lake Michigan Subwatershed Information](#)

[Lake Michigan LaMP](#)

Search

GO Search

Navigation

- Wiki Home
- EPA's Watershed Central Website
- About the Watershed Central Wiki

Popular Categories

- Watershed Management Framework
- Watershed Groups
- Projects
- Models, Tools & Databases
- Outreach & Communication
- Guidance
- Rules & Regulations
- Funding Sources

Help

- Getting Started
- FAQs
- How Do I...?
- User Guidelines

Community

- Calendar
- Discussion Board
- Wishlist

Toolbox

- What links here

1:04 PM 8/20/2013

Acknowledgments



- ❖ USGS, NOAA, USFWS, USFS, GLFC, USDA
- ❖ State Sea Grants, Universities
- ❖ Lake Michigan Forum, Watershed Acad.
- ❖ Lake Michigan Monitoring Coordinating Council,
- ❖ GLBA, Presenters/Participants
- ❖ IL, IN, MI, WI State and tribal Partners
- ❖ The IN Home Team and Volunteers!!



**Thank you and lets take the next steps
together!**

Prevent and control invasives, Reduce nutrients ,Green our infrastucture and harbors, Implement the Biodiversity Strategy, Keep up with the status of resource extraction projects/ emerging contaminants/Climate Change, Follow events on lakemichiganforum.org – see you in 2013